

CLAIMS

1 A method of reallocating switching circuitry in a switching fabric to permit data transfer
2 among a plurality of interface units each having a plurality of data ports, the switching
3 fabric being partitionable into a plurality of switch planes such that each switch plane is
4 assignable to transfer data associated with a like data port of the plurality of interface
5 units and each switch plane including multiple switching channels each being assignable
6 to transfer data associated with one data port of one of the interface units, the method
7 comprising:

8 determining a number of interface units connected to the switching fabric;

9 determining a number of switching channels in each switch plane; and

10 if the number of interface units is less than the number of switching channels in
11 each switch plane, for at least one of the plurality of switch planes, assigning a first
12 channel in the switch plane to transfer data associated with a first data port of a first
13 interface unit and assigning a second channel in the switch plane to transfer data
14 associated with a second data port of the first interface unit.

1 2. The method of claim 1 wherein each interface unit comprises twelve data ports.

1 3. The method of claim 1 wherein each switch plane comprises sixteen switching channels.

1 4. The method of claim 1 wherein switching circuitry is reallocated such that the number of
2 switch planes in the switching fabric can be reduced.

1 5. The method of claim 1 wherein the switching circuitry is reallocated such that the number
2 of switch planes in the switching fabric can be reduced by one half.

1 6. The method of claim 1 wherein switching channels in the switch planes are assigned to
2 data ports via an allocation table stored in a memory.

1 7. The method of claim 6 wherein the switching circuitry is reallocated by updating the
2 allocation table.

1 8. An apparatus for reallocating switching circuitry in a switching fabric to permit data
2 transfer among a plurality of interface units each having a plurality of data ports, the
3 switching fabric being partitionable into a plurality of switch planes such that each switch
4 plane is assignable to transfer data associated with a like data port of the plurality of
5 interface units and each switch plane including multiple switching channels each being
6 assignable to transfer data associated with one data port of one of the interface units, the
7 apparatus comprising:

8 a memory for storing an allocation table that stores assignments of the switching
9 channels to data ports of the interface units; and

10 a processor for (i) determining a number of interface units connected to the
11 switching fabric, (ii) determining a number of switching channels in each switch plane,
12 and (iii) if the number of interface units is less than the number of switching channels in
13 each switch plane, for at least one of the plurality of switch planes, assigning a first
14 channel in the switch plane to transfer data associated with a first data port of a first
15 interface unit and assigning a second channel in the switch plane to transfer data
16 associated with a second data port of the first interface unit.

1 9. The apparatus of claim 8 wherein the processor updates the allocation table to include
2 new assignments of the switching channels to data ports of the interface units.

1 10. The apparatus of claim 1 wherein each interface unit comprises twelve data ports.

1 11. The apparatus of claim 1 wherein each switch plane comprises sixteen switching
2 channels.

1 12. The apparatus of claim 1 wherein the switching circuitry is reallocated such that the
2 number of switch planes in the switching fabric can be reduced.

1 13. The method of claim 1 wherein switching circuitry is reallocated such that the number of
2 switch planes in the switching fabric can be reduced by one half.

1 14. The method of claim 6 wherein the switching circuitry is reallocated by updating the
2 allocation table.

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